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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR    | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|-------------------------|---------------------|------------------|
| 10/042,549      | 01/09/2002  | Christopher A. Michaluk | 00029CIP            | 5470             |

7590 01/25/2005

Martha Ann Finnegan, Esq.  
Cabot Corporation  
157 Concord Road  
Billerica, MA 01821

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| EXAMINER |
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ZHENG, LOIS L

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| ART UNIT | PAPER NUMBER |
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1742

DATE MAILED: 01/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/042,549

Applicant(s)

MICHALUK, CHRISTOPHER A.

Examiner

Lois Zheng

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 November 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2-35 and 37-94 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-35 and 37-94 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 17 November 2004 has been entered.

### ***Status of Claims***

2. Claims 2 and 37 are amended in view of the amendment filed on 17 November 2004.

Claims 1 and 36 are canceled in view of the amendment.

Claims 2-35 and 37-94 are currently under examination.

### ***Status of Previous Rejections/Objections***

3. The objection to the specification under 35.U.S.C. 132 due to new matter is withdrawn in view of the amendment filed 17 November 2004.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2-4, 16-17, 71-73 and 89-90 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clark et al. "Influence of Transverse Rolling on the Microstructural and Textural Development of Pure Tantalum", Metallurgical Transactions A, Volume 23A, August 1992, pages 2183-2191(Clark) in view of International Application Publication WO 87/07650(WO '650).

The teachings of Clark and WO '650 are discussed in the previous Final Office Action. The rejection ground is maintained for the same reason as stated in paragraph 4 of the previous Final Office Action.

With respect to amended feature in instant claim 2, Clark teaches that the tantalum ingot is extruded and annealed(page 2183, 3<sup>rd</sup> full paragraph). Since annealing is not a thermomechanical process and Clark does not teach that the grain size of the extruded and annealed tantalum is not substantially uniform, the examiner maintains the position that the extruded and annealed tantalum of Clark in view of WO '650 meets the amended claim limitation of having "a substantially uniform average grain size after extrusion and before any further thermomechanical processing".

6. Claims 18-35, 74-79 and 91 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clark in view of WO '650, further in view of Friedman et al. US 5,482,672(Friedman).

The rejection ground is maintained for the same reason as stated in paragraph 5 of the previous Final Office Action.

With respect to the amended feature in claim 2, on which claims 18-35, 74-49 and 91 depend, the rejection ground was given in paragraph 5 above.

7. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Clark in view of WO '650, further in view of Rerat US 4,149,876(Rerat).

The rejection ground is maintained for the same reason as stated in paragraph 6 of the previous Final Office Action.

With respect to the amended feature in claim 2, on which claim 15 depends, the rejection ground was given in paragraph 5 above.

8. Claims 37-49, 51-70, 80-88 and 92-94 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clark in view of Friedman, further in view of Japanese Patent 362104180A(JP '180).

The rejection ground is maintained for the same reason as stated in paragraph 7 of the previous Final Office Action.

With respect to amended feature in instant claim 37, even though Clark's teaching is directed to tantalum, one of ordinary skill in the art would have found the claimed extruded niobium billet obvious since tantalum and niobium belong to the same group of metals in the periodic table and exhibit very similar properties. Therefore, the

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examiner maintains the position that Clark in view of Friedman and further in view of JP180 meet the amended limitation for the same reason as stated in paragraph 5 above.

9. Claim 50 is rejected under 35 U.S.C. 103(a) as being unpatentable over Clark in view of Friedman, further in view of Rerat, further in view of Japanese Patent 362104180A(JP '180).

The rejection ground is maintained for the same reason as stated in paragraphs 8 and 9 of the previous Final Office Action.

With respect to the amended feature in claim 37, on which claim 50 depends, the rejection ground was given in paragraph 8 above.

### ***Response to Arguments***

10. Applicant's arguments filed 17 November 2004 have been fully considered but they are not persuasive.

With respect to applicant's argument that combining WO '650 with Clark to obtain the various claimed properties is based on hindsight, the examiner maintains the rejection ground since the motivation to combine WO'650 with Clark is clearly provided by WO'650 in its abstract(i.e. to form a tantalum sputtering target yielding a high quality insulating film and metallic Ta electrode film). In addition, applicant is reminded that the definition of a tantalum billet with "substantially uniform average grain size" is not provided in the specification of the instant invention. Therefore, based on the broadest

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interpretation, the extruded tantalum billet of Clark in view of WO'650 as evidenced by of Schussler meets the claimed limitation of the instant invention.

With respect to applicant's arguments that Friedman does not teach extrusion of ingot-derived tantalum since the extrusion of tantalum ingot is only mentioned in the Background of Friedman, not in the disclosure of Friedman's invention. The applicant is reminded that any part of the specification in a prior art, including the background information, can be used in forming claim rejections. Friedman teaches the extrusion of tantalum ingot as a alternative to press forming of tantalum powder(col. 1, lines 19-20 and 41-44). Therefore, one skilled in the art would have recognized that extrusion of tantalum ingot is a viable alternative to cold isostatic pressing of powdered tantalum(i.e. Friedman's invention) as taught by Friedman. The examiner maintains the rejection ground for the same reason as stated in paragraph 5 of the previous Office Action.

With respect to applicant's argument that Rerat does not teach or suggest a capacitor can comprising an extrude ingot-derived tantalum having a substantially uniform average grain size after extrusion and before any further thermomechanical process, the examiner maintain the rejection ground because the teachings of a well known production of capacitor parts from tantalum and niobium is sufficient for one of ordinary skill in the art to found making capacitor can from the extruded billet of Clark in view of WO '650 since the extruded billet of Clark in view of WO '650 is also tantalum or niobium.

With respect to applicant's argument that JP'164 does not teach a niobium billet, the examiner maintains the rejection ground because JP'164 teaches the method of

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making the niobium sputtering target comprising plastic working the material the Nb ingot. A sputtering target can be in different shape and form, such as a billet, a metal plate, a strip or a slab. Since changes size and/or shape(i.e a billet, or a metal plate or a slab) in the product from a niobium ingot is merely a design choice, one of ordinary skill in the art would have found the making of billets from niobium ingots obvious. See MPEP 2144.04.

### ***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Schussler "Tantalum(Ta)", ASM Handbook, Volume 2, Pure Metals, pages 1160-1163(Schussler) teaches that annealing temperature directly affects the grain size of tantalum(page 1162, 2<sup>nd</sup> full paragraph).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lois Zheng whose telephone number is (571) 272-1248. The examiner can normally be reached on 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LLZ  
1/21/05

ROY KING   
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700